Mac OS X Server Overview

Session 604

Mac OS X Server Overview
“Panther Server”

Eric Zelenka
Worldwide Product Marketing, Server Software
Apple

Mac OS X Server “Panther”

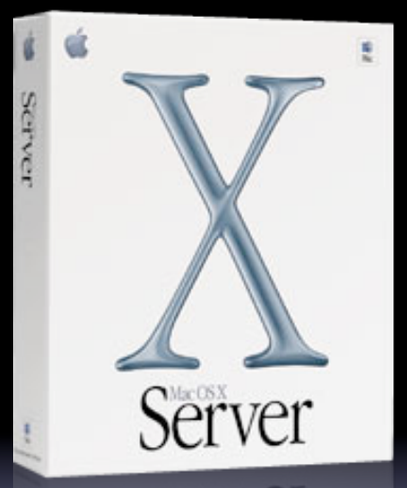
Apple's Recent Server History

Timeline of Events

Mac OS X Server Version 10.0

May

Mac OS X Server Version 10.1



Sept

2001

Apple's Recent Server History

Timeline of Events

Xserve
Announced

June

Mac OS X Server
"Jaguar" Version 10.2

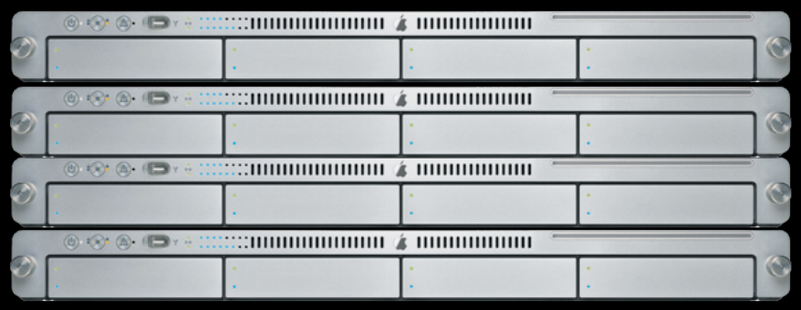
September

2002

Apple's Recent Server History

Timeline of Events

Xserve RAID
New Xserve
Xserve Cluster Node



February

Mac OS X Server
"Panther" Version 10.3

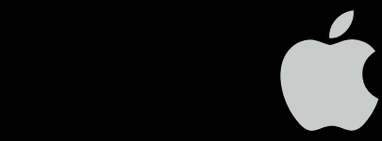
Later This Year

2003

Apple's Strategy

Bring innovation to the data center

- UNIX power with Macintosh easy of use
- Build on open standards, protect technology investments
- Deliver the best implementation of open source software
- Build high-performance hardware and software that's built to work together
- Deliver more capabilities with less cost



Design Goals for Panther Server

- Best implementation of open source software
- Improve integration into existing environments
- Provide viable alternative to Windows servers
- Improve performance and scalability
- Deliver easy to use administration tools

New in Panther Server

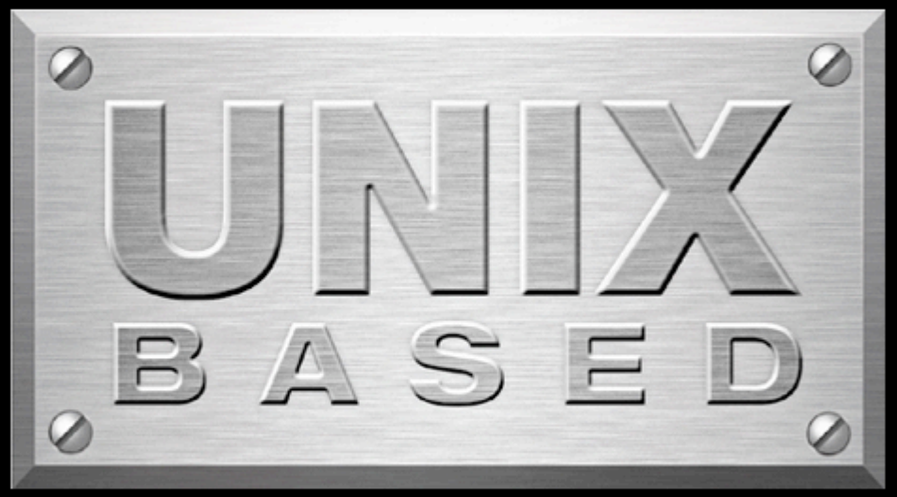
- BSD 5
- Automatic Setup
- Server Admin
- Samba 3
- Open Directory 2
- Single Sign-on
- VPN Server
- JBoss Application Server
- Postfix Mail Server

Mac OS X Server Panther
Feature Overview

Greg Burns
Mac OS X Server Engineering

Robust Unix Foundation

Advanced Computing, Networking and Security Capabilities



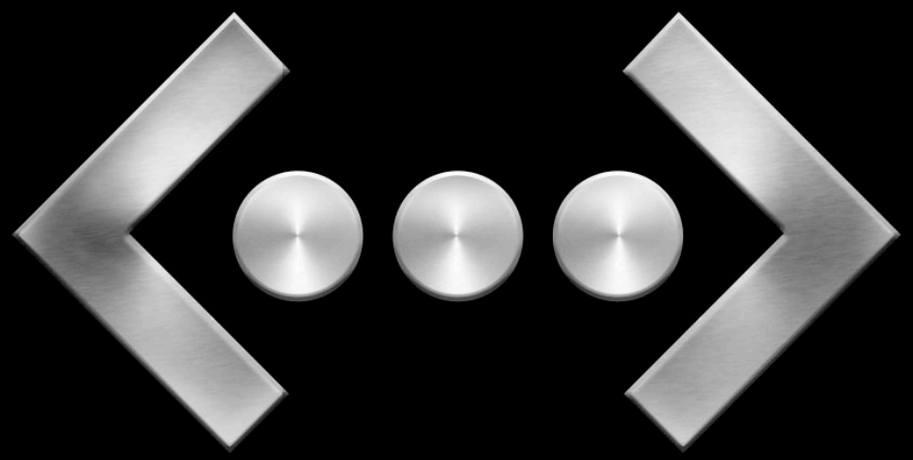
UNIX-based Platform

Industrial strength server operating system

- Open source BSD 5 foundations
- Symmetric multiprocessing and preemptive multitasking
- Designed for superior reliability

Platform Enhancements

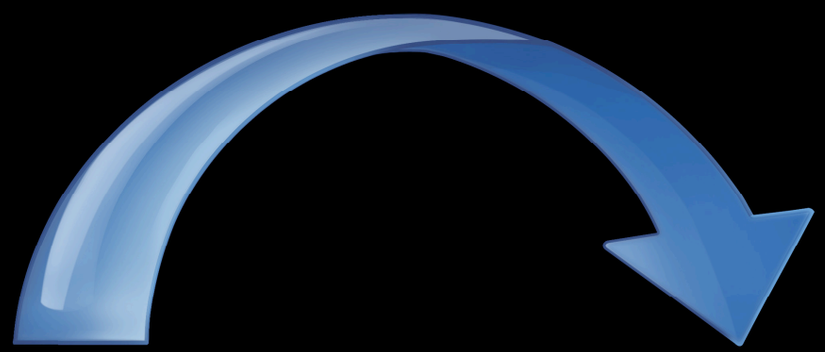
- I/O Improvements
  - Improved performance
  - Asynchronous I/O
- File System
  - 16 TB file system support
  - Journalling file system
  - Case-sensitive HFS+



Advanced Networking

TCP/IP networking—support for Internet standards

- BSD networking with support for IPv6 and IPSec
- Multihoming for hosting multiple IP addresses on multiple interfaces
- Gigabit jumbo frame support
- IP over FireWire



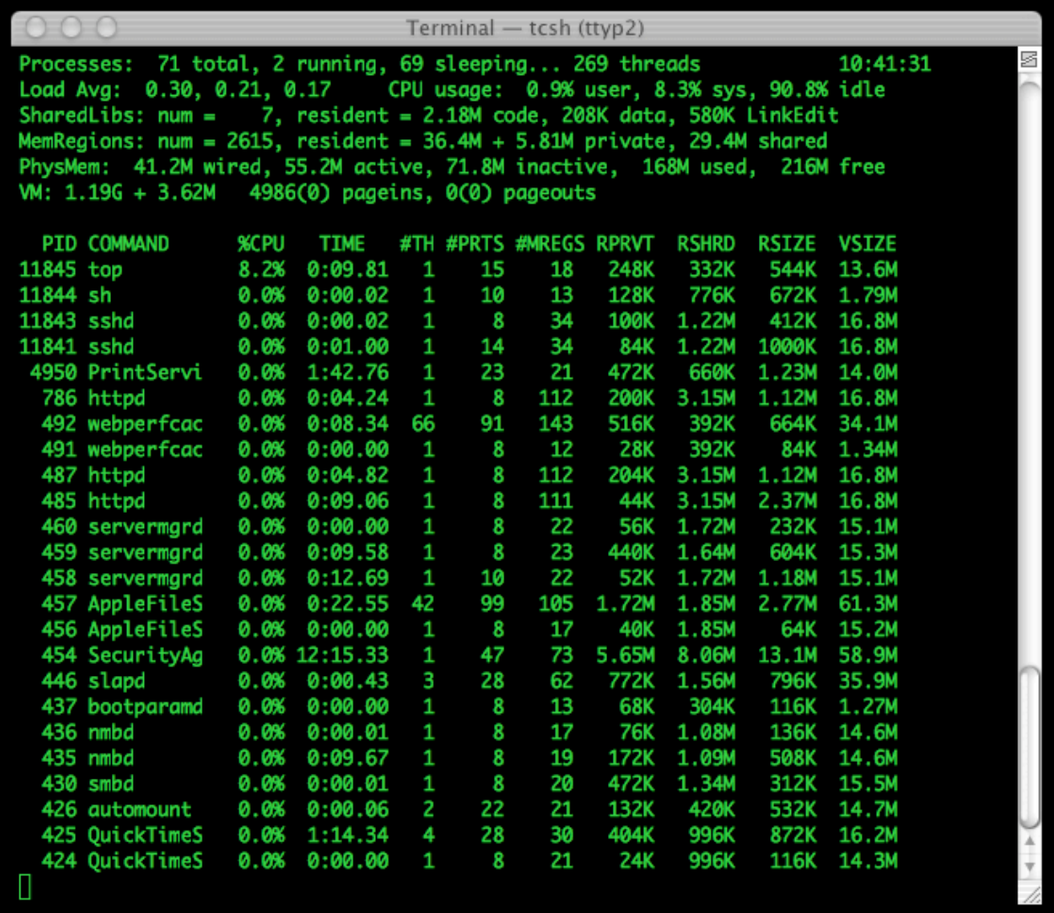
High Availability

Maximizing service uptime

- Automatic Restart Service to automatically recover services after an application or system failure
- Support for IP failover
- Software RAID support for improved reliability and performance of server storage

Terminal Utilities

Familiar command-line tools for server administration



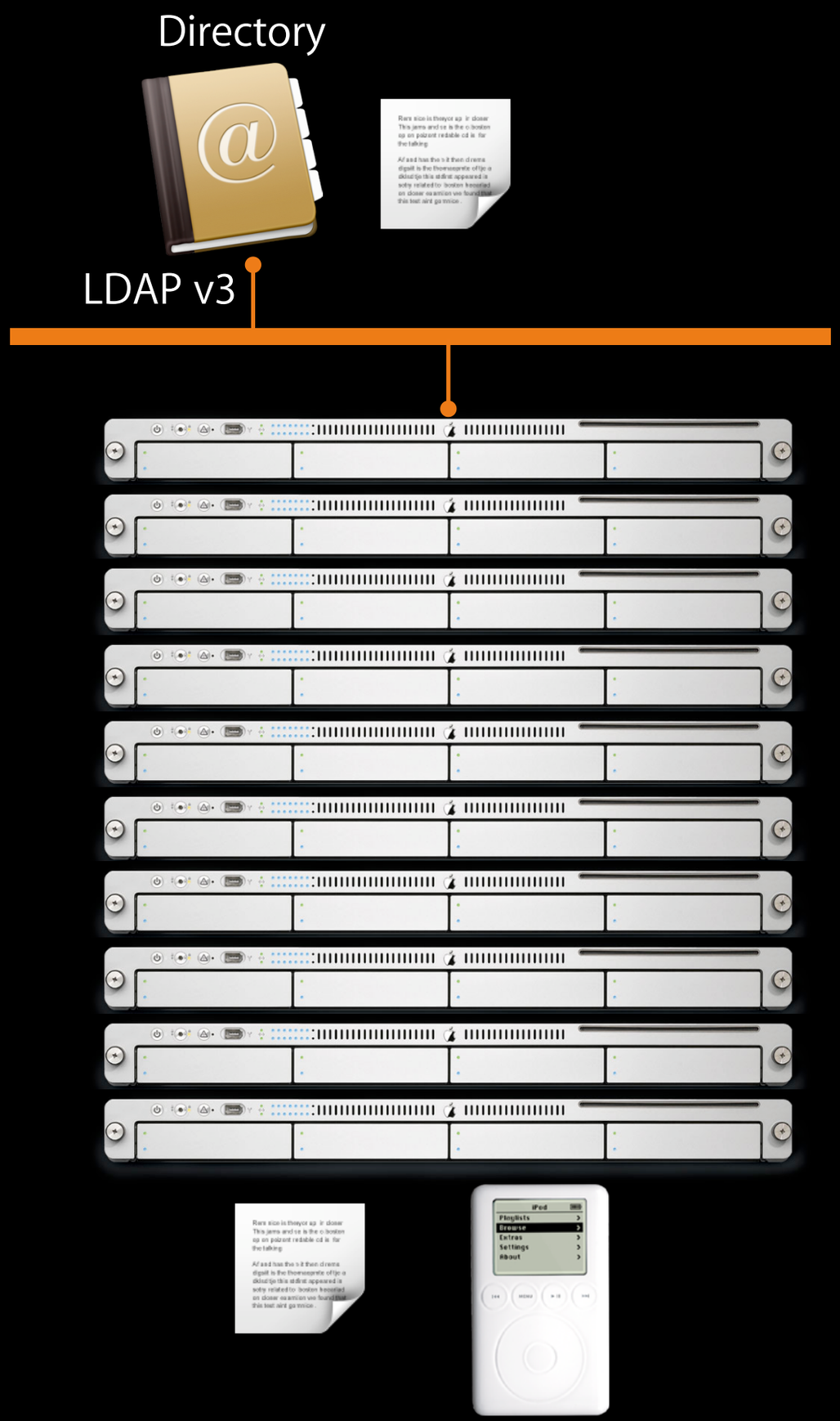
- Secure remote login with SSH
- Built-in UNIX shells: sh, csh, tcsh, zsh

Server Management

UNIX Power & Macintosh Ease of Use

Server management applications

- Automatic setup of multiple servers
- Comprehensive Server Administration Tools
- Directory Management Tools



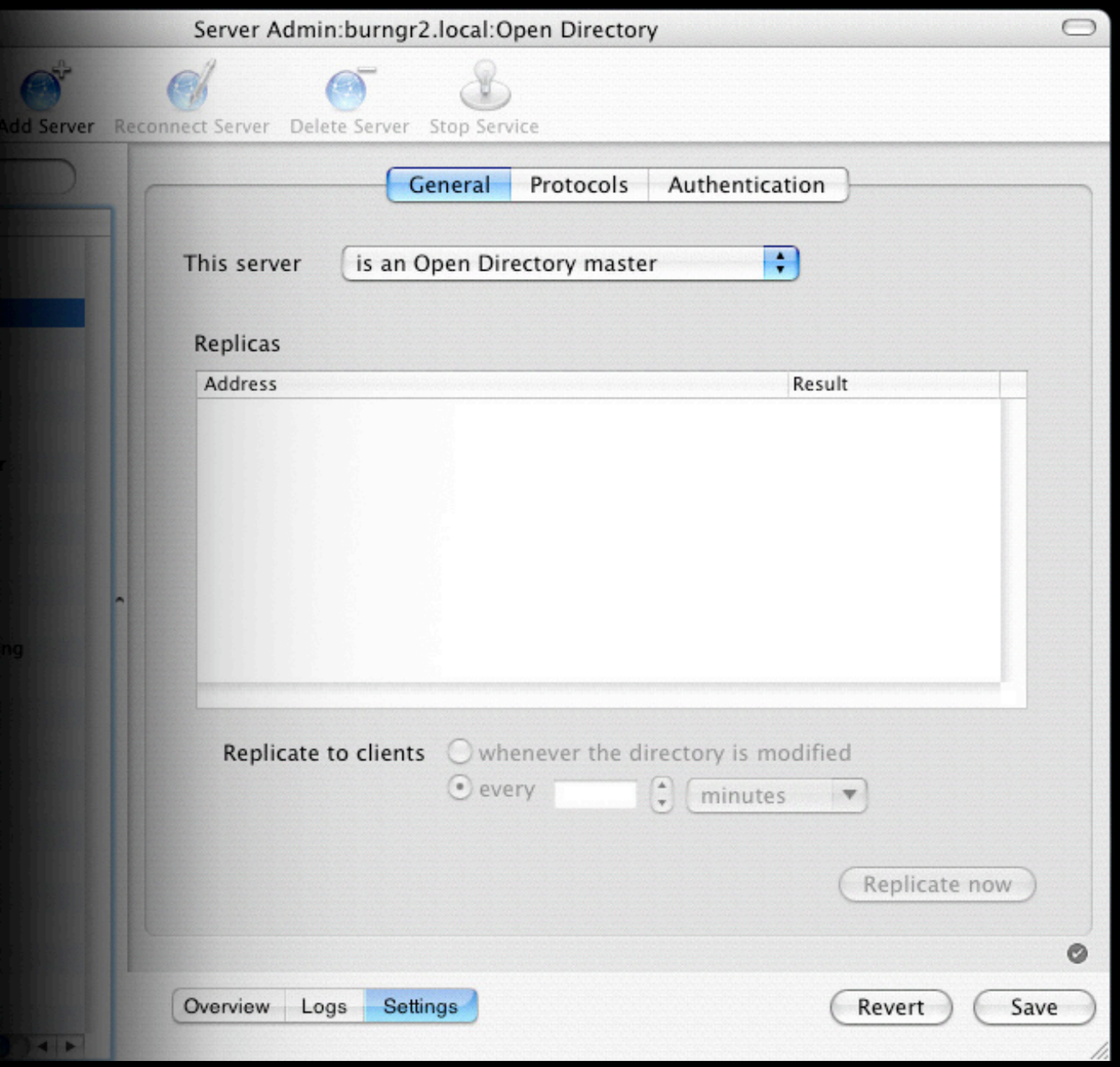
Automatic Server Setup

The fastest and easiest way to set up multiple servers

- First server OS that can be set up from an LDAP directory
- All servers automatically configured at first boot
- Configuration can also be stored on an iPod, Disk-on-Key, portable disk drive

Automatic Server Setup

Demo

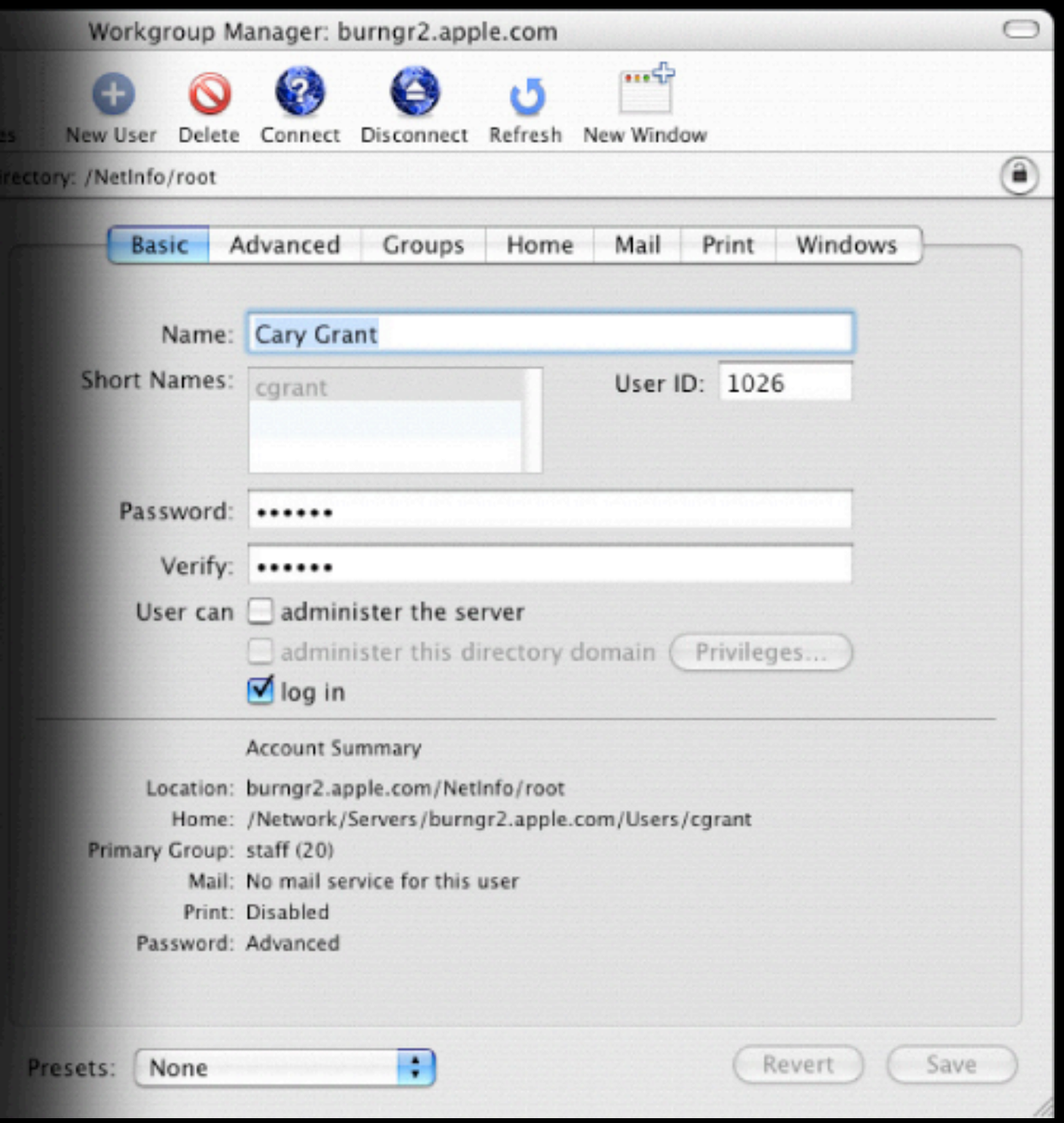


Improved Server Administration

All new Server Admin application

- Integrated application for service configuration, status and log viewing
- Manage and monitor all services
- Multiple service configuration
- Easily replicate configurations between servers

Server Admin Demo



Workgroup Manager

Easy to use Macintosh management tools

- Centralized directory-based management of users, groups, and computers
- Control access to software, hardware, and network resources
- Works with any LDAPv3 directory server
- Directory inspector for raw access to records

Open Directory 2.0

Scalable, High-availability Directory and Authentication

Open Directory

Enterprise directory services and authentication

- Open Directory is Apple's client access and server technology for directory and authentication
- Open standards implementation includes LDAP directory services and Kerberos authentication
- All services in Mac OS X client and server integrate with Open Directory

Authentication

Strong Authentication and Single Sign-on

- Single Sign-on
  - Log in once and securely access services on your network without additional passwords
  - Access file servers, email, secure web sites
  - Authenticated automounts
- Password server provides support for legacy authentication methods

Single Sign-On

Kerberos in Mac OS X

- Apple is adopting Kerberos for network single sign-on
- Apple is basing all their Kerberos work on the MIT Kerberos v5 implementation
- Panther can be configured to work with existing Kerberos deployments
- Panther Server provides KDC services and management tools

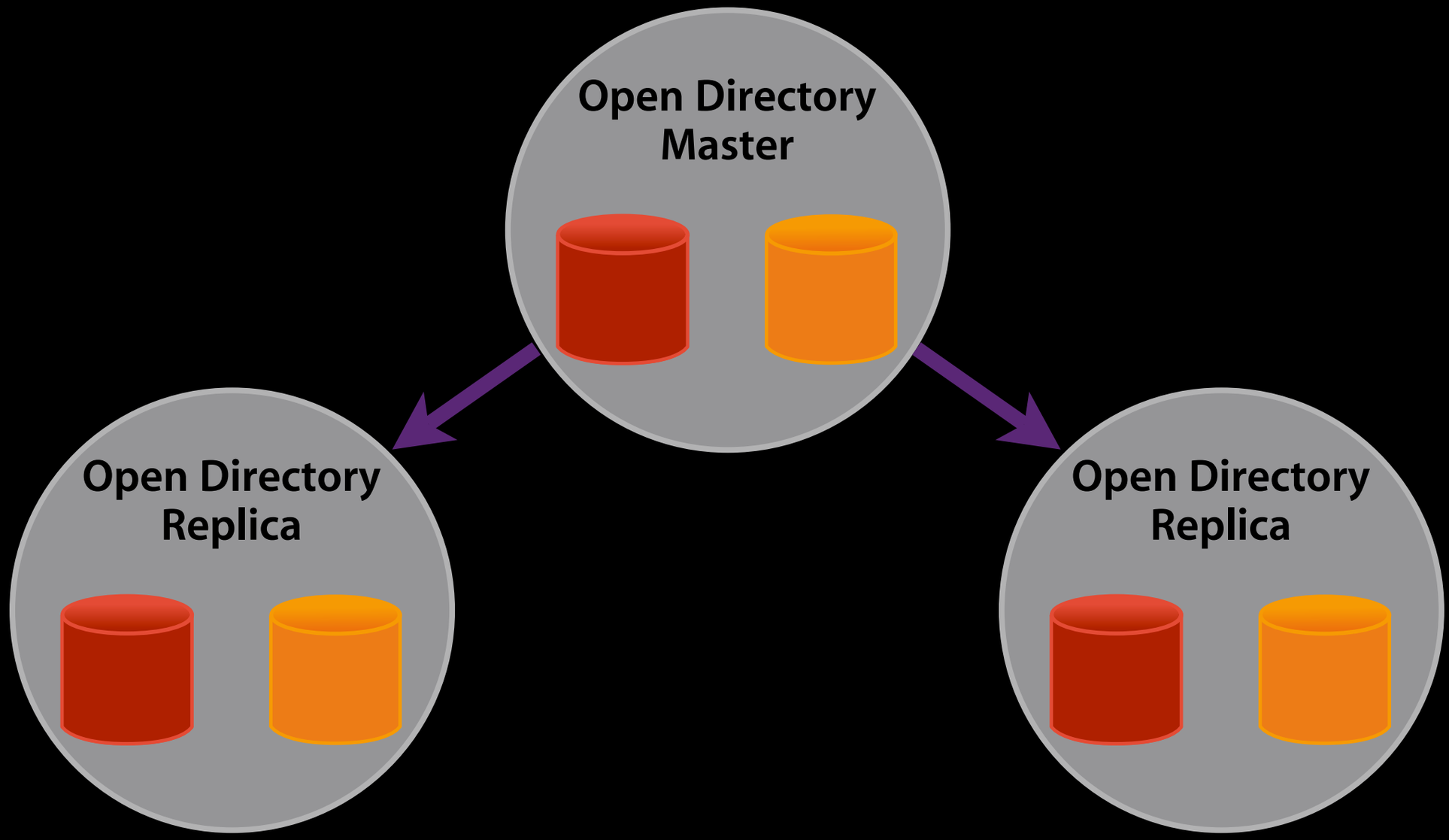
Scalability

Improved performance and scalability

- LDAP services hosted on Berkeley DB
- Hot backup
- Scalability to >100,000 records per server
- Directory and authentication service replication

Directory and Auth Replication

- Directory and authentication servers can be replicated for scalability and availability
- Authentication replication integrated with Kerberos KDC



Open Directory 2.0 Services

Demo

Workgroup Services

Native File and Print Services for Macintosh, Windows and UNIX

Cross-platform File Sharing

Native services for Mac, Windows and UNIX

- High performance
- Multiple protocols per share point
- Unified authentication
- Disk quotas

UNIX File Services

Improved NFS file services

- Native NFS support for UNIX systems
- NFS resharing via AFP for secure access to enterprise storage
- Improved performance and reliability
- NFS file locking

Windows File Services

Improved Windows Integration

- Native SMB/CIFS services for Windows clients
  - Now based upon Samba 3.0
- Primary Domain Controller (PDC) services
  - Windows domain authentication
  - Windows users can authenticate to Mac OS X Server from Window's login window
  - Supports Windows roaming profiles on Mac OS X Server
- Integrated with Open Directory
  - Unified user accounts for both Mac and Windows

Active Directory Integration

- Integrated with Mac OS X Server
- No schema changes required for basic or Kerberos authentication
- Multi-domain authentication

Macintosh Workgroup Management

Centralized Management of Users, Groups and Computers

Directory-based Desktop Management

Everything needed to configure a network of Mac OS X systems

- Management tools allow network installation, setup and configuration of Mac OS X systems
  - Install new or pre-configured software
  - Setup system preferences
  - Provide per-account and shared data storage
- Control and restrict access to system and network resources

New in Panther Server

Manage Mobile Accounts

- Manage User Accounts on mobile computers
- Synchronize user account, authentication and management data when directory is online

NetBoot

Centralized boot images

- Start up networked systems from a single server-based disk image
- Replicate client or server configurations across a workgroup or compute farm
- Deploy network diagnostic and repair utilities
- NetBoot over HTTP
- Diskless NetBoot

Network Install

Automatic software installation

- Install, upgrade, and restore software on desktops or portable systems
- Distribute software and operating system updates efficiently
- Host multiple installation images per server
- Redesigned Network Image Utility
- ASR software installation

Internet and Network Services

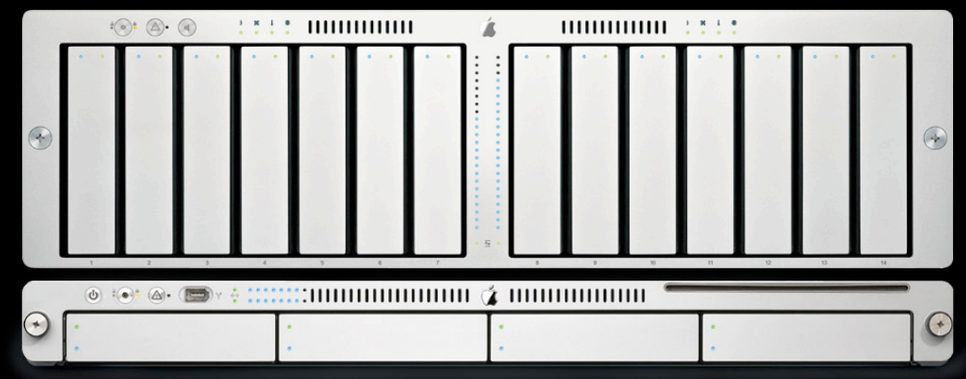
Scalable Mail and Web Services Platform

Chris LeCroy and Francois Jouaux

Media Streaming

Royalty-free Audio and Video Streaming

Media Streaming



QuickTime Streaming Server 5

Powerful media server with no per-user license fees

- MPEG-4 Video and MP3 Audio streaming
- Mac, Windows and Linux clients
- “Instant On”
- Skip Protection
- Up to 4000 reflected streams per server

QTSS Publisher

Integrated management of media content

- Remote media file management
- Automatic hinting and web preparation of media
- Create QuickTime web galleries
- Streaming play list management
- Annotation Editing
- Unix tools

QuickTime Broadcaster

Live media streams with no per-user license fees

- MPEG-4 and all QuickTime codecs supported
- Reliable transport for ensuring high-quality broadcasts
- Unicast and multicast support
- Delivery of ISO-compliant streams to any standard player

Networking Services

Secure Standards-based Networks

Networking Services

IP

DNS
DHCP
NAT

Time

NTP

VPN

PPTP
L2TP/IPSec

Firewall

IPFW

Security

IPSec

Authentication

MS-CHAP
SASL

Dynamic Host Configuration

Simplify network setup and configuration

- DHCP service for automatic IP address and LDAP directory assignments
- Supports static assignment by Ethernet (MAC) address
- Control IP address ranges, lease times and network routing

Network Routing

Network Address Translation

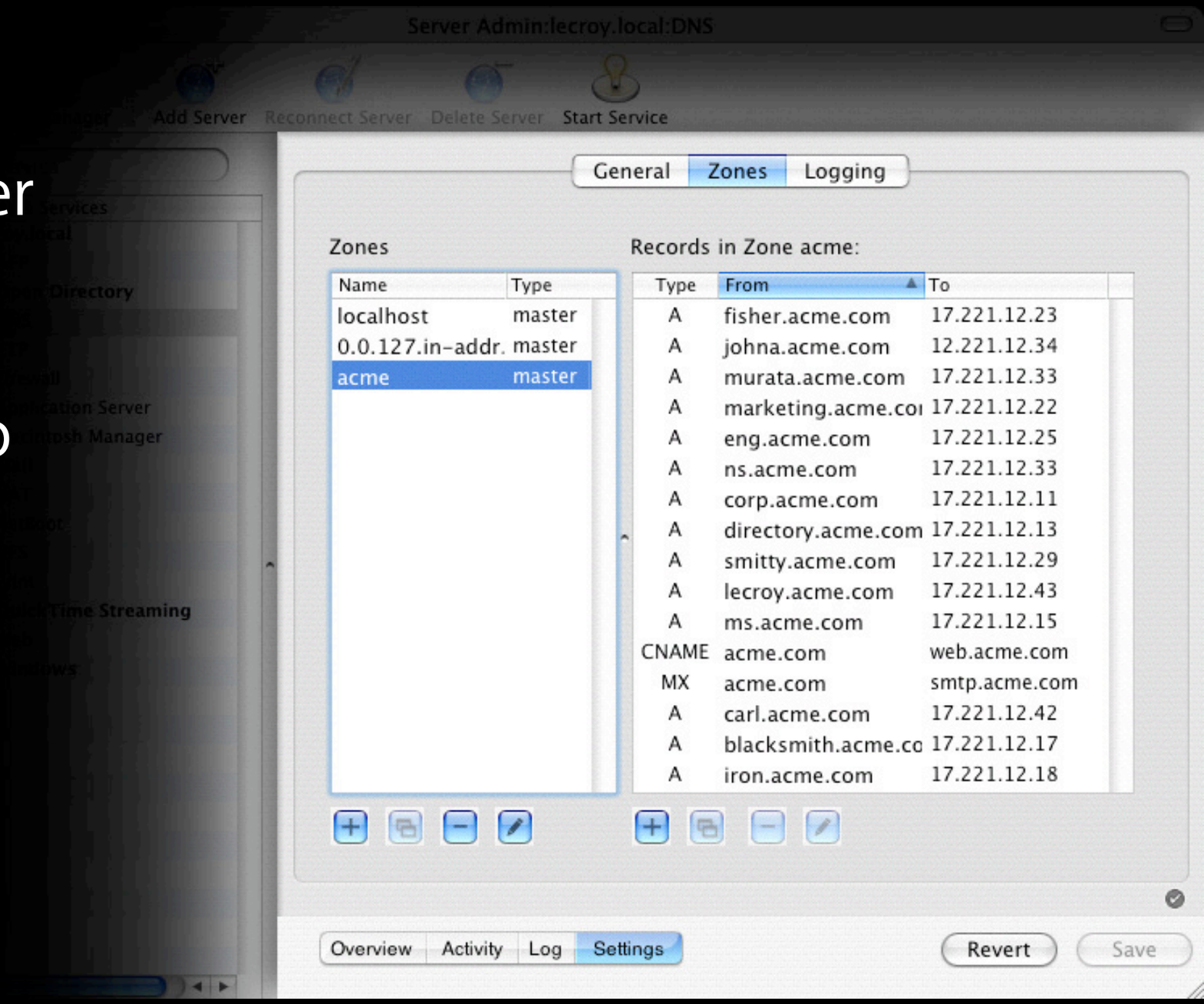
- Connect multiple computers to a network using a single IP address; share limited IP address resources

Virtual Private Networking

- Secure remote network access supports Mac OS X, Windows, UNIX and Linux clients
  - Strong authentication using MS-CHAP, IPSec
  - Secure IP Tunneling: L2TP over IPSec and PPTP

DNS

- BIND 9—the most deployed DNS server on the Internet
- Built-in U/I for configuration, setup and administration of DNS services and record entries



Firewall

Network traffic control

- Packet filtering firewall (ipfw)
- Simple to use U/I for basic rules
- U/I also allows easy creation of complex rules

Mail Services

Internet Standard Email and WebMail

SMTP

HTTP

POP3
IMAP4/SSL

IMAP4

Windows

Mac

UNIX

Enterprise-class Mail Services

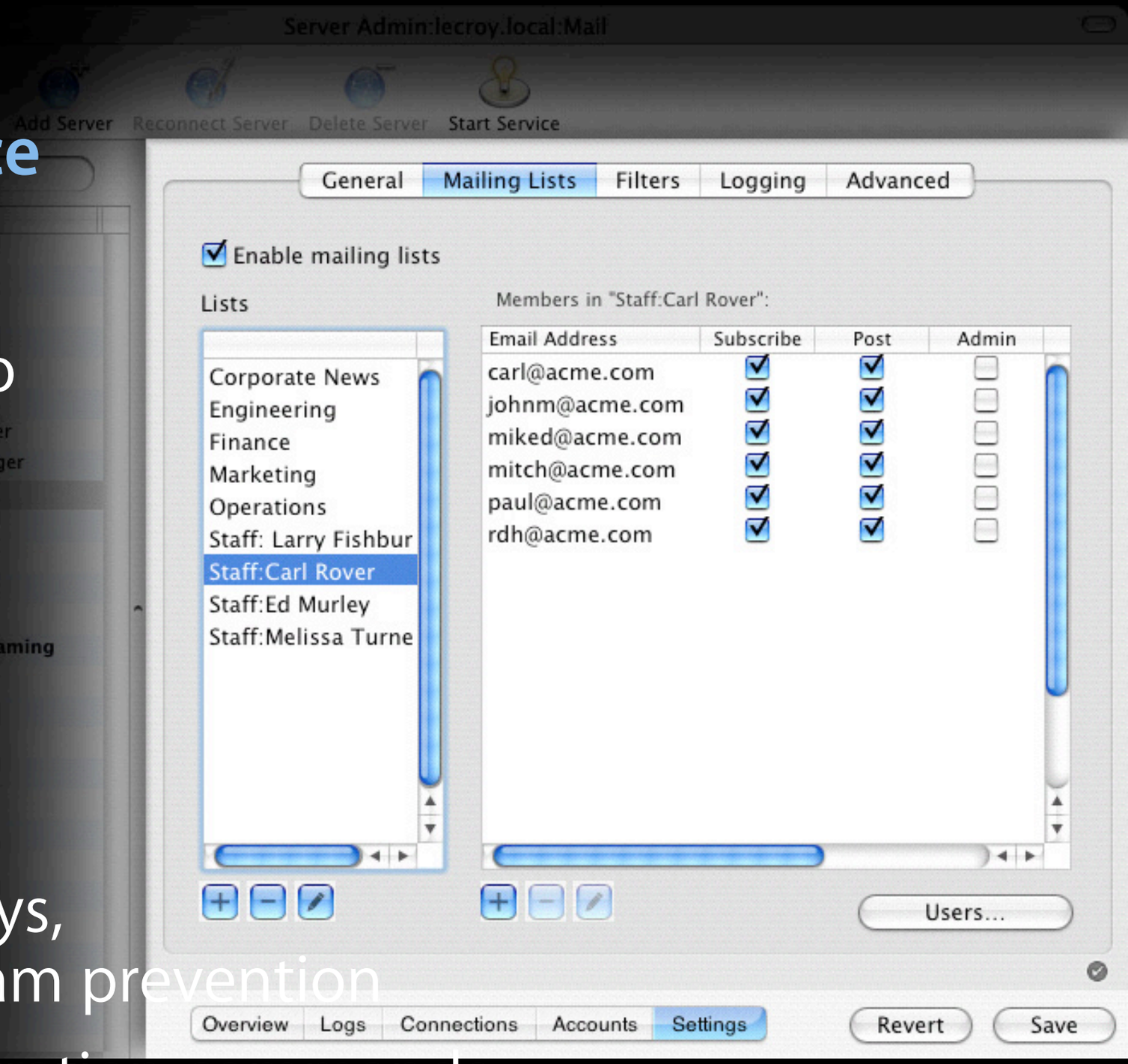
Robust New Mail Server

- Reliable, high performance mail server with support for SMTP, POP and IMAP
  - Postfix for high performance SMTP mail delivery
  - Cyrus for scalable IMAP & POP mailboxes
  - Host thousands of email accounts
  - Flexible mail storage
- Secure email communications using SSL

Mailing Lists

Powerful open source Mailman software

- List creation built into Server Admin app
- Individual mailing list web pages for subscribing and unsubscribing
- Integrated archiving, mail-to-news gateways, bounce handling, spam prevention
- Email-based administration commands



WebMail

Using popular open source SquirrelMail

- Standards-based webmail service written in PHP 4
- Pure HTML 4.0 for maximum browser compatibility
- Works with any SMTP and IMAP mail server
- Supports MIME-encoded email messages, address books and folder manipulation
- Host using SSL (HTTPS) for secure authenticated email access

Mail Services

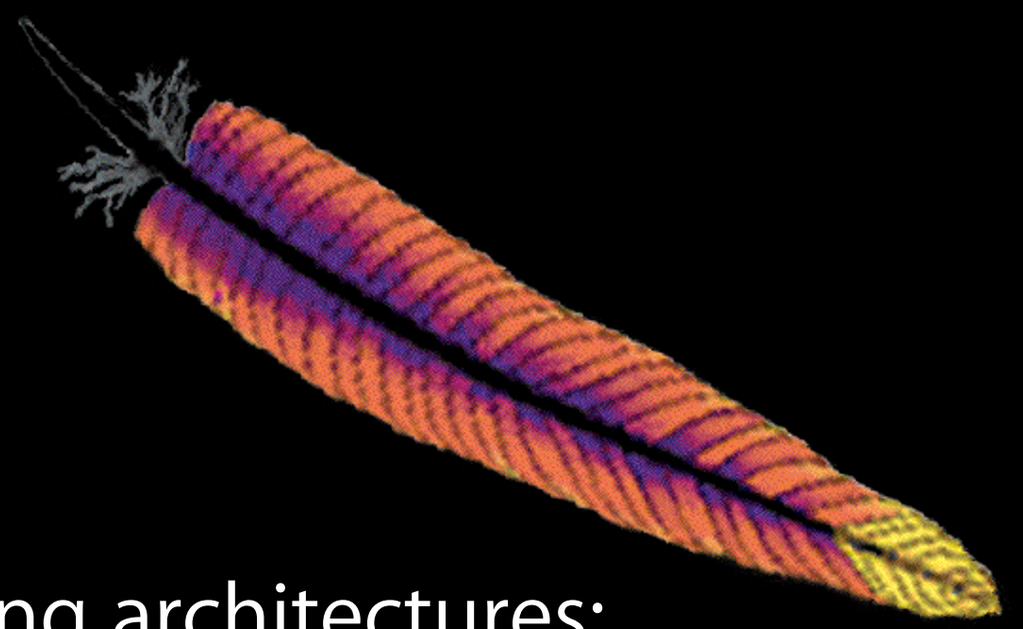
Demo

Web Services

Scalable Standards-based Platform

Apache Web Server

- Performance-optimized for Mac OS X Server
- Apache 1.3 and 2.0
- Improved administration interface
- WebDAV for web publishing
- MySQL 4
- Support for server-side scripting architectures: SSI, Perl, Ruby, PHP



3-Tier Web Sites With Mac OS X Server

Everything you need built-in

Database Servers

MySQL 4
FileMaker*
4D*
Oracle*
Sybase*

Application Servers

JSP's and
Java Servlets
WebObjects
J2EE*

Web Servers

Apache
SSL
WebDAV
SOAP
XML-RPC

*Available from third parties

Java/J2EE/WebObjects

Technologies Behind the Best Application Servers

Java

Performance-optimized for Mac OS X Server

- Built-in Java virtual machine (J2SE), improved for faster server-side performance
- Optimized for hosting server-side applications and services
- JDK 1.4.1 and 1.3.1 included

Java™

J2EE and JBOSS

- *Mac OS X Server, the best JBoss platform*
- JBoss, optimized for Mac OS X Server
  - Standard-based (J2EE)
  - Open-source
  - Most popular application server
    - 40% of J2EE developers use it, 70% deploy it!

JBoss 3.2

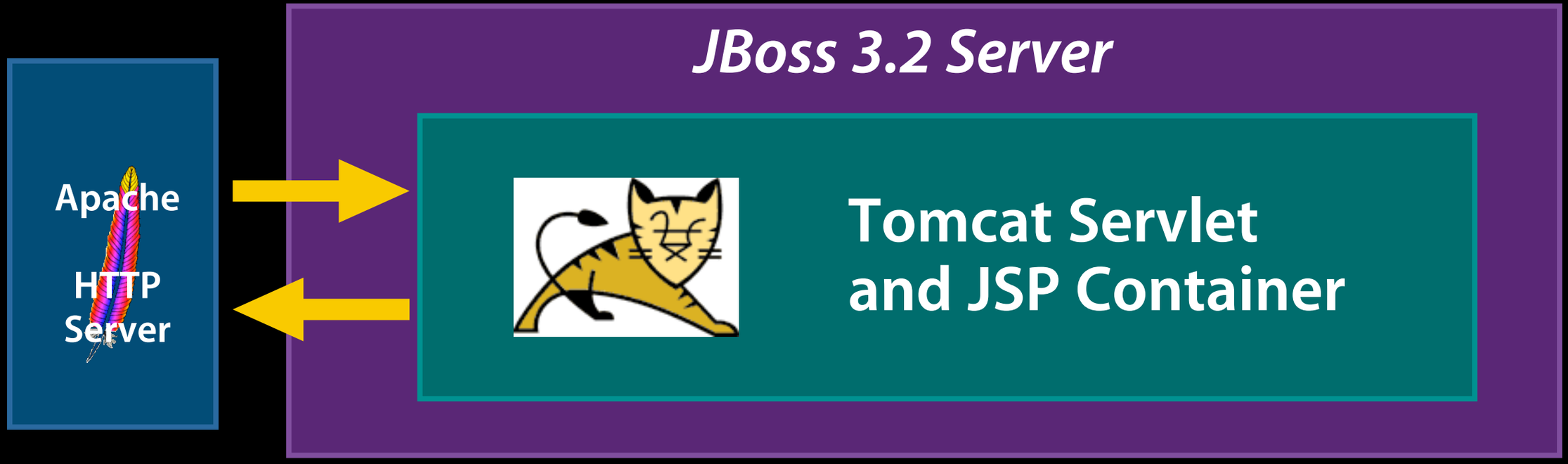
Two New JBoss Tools

The smoothest path to deployment, on Mac OS X Server Only!

- JBoss Deployment Tool
  - Configures J2EE Applications for JBoss server
- JBoss Management Console
  - Configures, monitors all Services and Applications
  - Manages JBoss clusters and fail-over across network of XServe

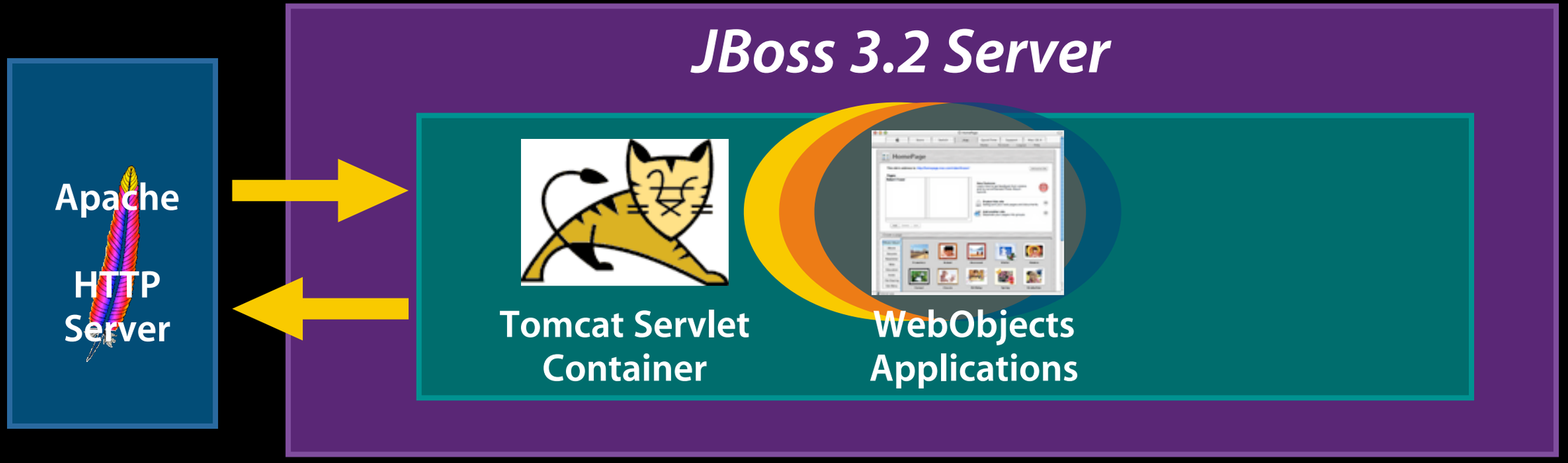
Apache Tomcat

- Servlet Container, Version 4.1.x
- Integrated with JBoss
- Configured with Deployment and Management Tools



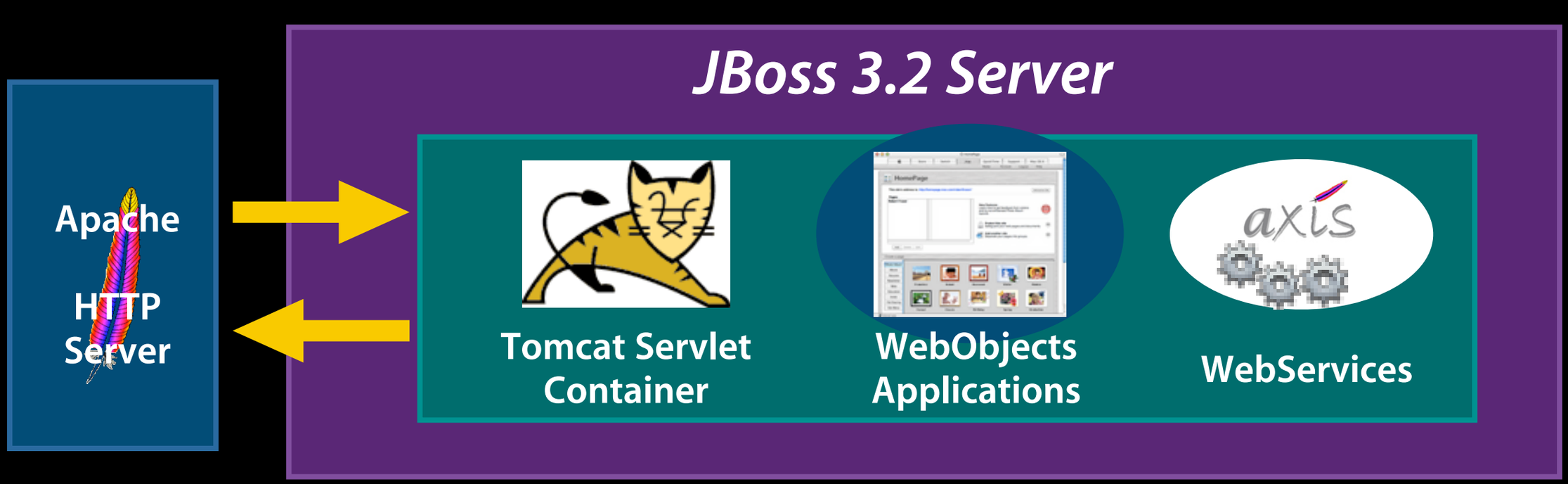
WebObjects <-> JBoss Integration

- WebObjects 5.2.2 with enhanced J2EE support
  - True J2EE packaging
  - JNDI configuration



Apache Axis

- Web Services/SOAP Engine, Version 1.1
- Also integrated WebObjects Web Services



Internet Services

Scalable Mail and Web Services Platform

Documentation

Improved Documentation

- 12 Manuals
- Over 1000 pages of online help
- New and updated man pages

Mac OS X Server

Wrap-Up

Mac OS X Server

Feature Highlights

Unix Foundation
- BSD 5

Management
- Automatic Setup
- Server Management Tools
- Directory Management Tools

Open Directory 2.0
- LDAPv3 Server
- Single Sign-on (Kerberos v5)
- Scalability & Replication
- Active Directory integration
- Password Server (SASL)

Workgroup Management
- Workgroup Manager
- NetBoot & Network Install
- Managed Mobile Accounts

File and Printer Sharing
- Macintosh (AFP)
- Windows (SMB/CIFS—Samba 3)
- Domain Authentication
- UNIX and Linux (NFS)
- Internet (FTP, WebDAV)

Networking and Security
- DHCP Server
- DNS Server (Bind 9)
- VPN
- Time Server (NTP)
- NAT Server
- IP Firewall
- IP Failover

Internet Services
- Apache Web Server
- Mail (Postfix & Cyrus)
- Mailing Lists (Mailman)
- Web Mail
- QuickTime Streaming Server
- QuickTime Broadcaster
- QTSS Publisher

Web Application Servers
- WebObjects 5.2
- J2EE (JBoss)
- JSPs, Servlets—Tomcat
- Perl, PHP, Ruby, MySQL 4
- SOAP, XML-RPC—Axis

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Roadmap and Contacts

Roadmap—Mac OS X Server

606 Mac OS X Server In Depth	The Marina Tuesday, 3:30pm
607 Authentication in Mac OS X Server	Nob Hill Tuesday, 5:00pm
610 Directory Services	The Mission Wednesday, 10:30am
611 Managed Desktop Technologies	Nob Hill Wednesday, 2:00pm
618 Building Applications for Managed Network Environments	Pacific Heights Thursday, 9:00am

Roadmap—Mac OS X Server

605 WebObjects and J2EE	Pacific Heights Tuesday, 3:30pm
624 WebObjects— Creating Web Services	Nob Hill Friday, 3:30pm
704 Introduction to QuickTime Streaming	Haight/Ashbury Tuesday, 2:00pm
719 Administering QuickTime Streaming Server	Haight/Ashbury Wednesday, 3:30pm
727 QuickTime Streaming Server Programming	The Mission Thursday, 2:00pm
FF02 Mac OS X Server	North Beach Tuesday, 5:00pm

Who to Contact

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ericz@apple.com

http://developer.apple.com/wwdc2003/urls.html

Q&A

Session 604

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WWDC 2003

Worldwide Developers Conference